

Claims

1. Method for controlling the transition from a first mode of operation, of a direct injection internal combustion engine (46), to a second mode of operation, whereby a valve lift is switched over, whereby the torque is determined before and after the switchover and any impermissible step-change in the torque is partially compensated by a resetting of the ignition angle, whereby for the purpose of switching over to a small valve lift the throttle valve is first opened before switching over to the small valve lift, and whereby the ignition angle is retarded back to a permissible minimum value, characterized in that for the purpose of further compensating for the impermissible step-change in torque a split injection of fuel is effected, whereby at least a portion of the fuel load to be injected is injected during the compression phase.
2. Method in accordance with claim 1, characterized in that during the switchover phase the fuel load to be injected is injected entirely within the compression phase.
3. Method in accordance with one of the preceding claims, characterized in that the portion of the fuel load which is to be injected is fed in in the phase when at least one inlet valve is closed.
4. Method in accordance with one of the preceding claims characterized in that the ignition angle is continuously retarded.
5. Method in accordance with one of the preceding claims characterized in that after the switchover there is a return to normal operation if the torque smoothing has been successfully completed.

6. Method in accordance with one of the preceding claims characterized in that a larger valve lift can be specified in the case of a discrete valve lift switchover.

7. Method in accordance with one of the preceding claims characterized in that after a switchover to operation with a small valve lift or a large valve lift the settings for the corresponding standard injection are then applied.